ADEQ
Arizona Department
of Environmental Quality

Year 2005

Air Quality Division

ANNUAL AIR EMISSIONS INVENTORY QUESTIONNAIRE

For Facilities Permitted to Operate a Concrete Batch Plant

The 2005 Annual Emissions Inventory Questionnaire includes 4 forms that are required to be completed and submitted to the Air Quality Division. Instructions for each form are included below. Upon completion, submit the forms along with the signature by the Responsible Official of the facility within 90 days of receipt of a letter from the Department.

FORM 1: **Facility General Information**

SECTION I thru III: Complete all fields as requested.

FORM 2: **Equipment, Stack & Location Data**

Equipment Data: List all the on-site equipment along with the Authorization To Operate (ATO) number where available. Indicate, if not available.

Stack Data: Provide details of each stack.

Location Data: If the portable equiment was moved from one location to another, list the dates, the counties, the latitude & longitude or address/driving direction for the portable equipment that was operated during the year 2005.

FORM 3A : **Emissions Data - Point & Fugitive Emissions**

Enter the throughput rate (tons/hour) for the equipment operated and the hours operated for the year 2005. Input the number of the storage piles that were stored and processed. If the number of the hours stored is unknown, use 8760 hours to obtain a worst-case estimate. Enter the vehicle miles traveled for the haul roads (miles/year). ***All the formulas are set to complete the calculations as the data is unputted. Therefore, do not move or change any of the fields or columns. If moved the results will be wrong calculations.***

FORM 3B: **Emissions Data - Generator Emissions**

Based on the fuel used, (Gasoline, Diesel, or Natural Gas/Liquid Propane), choose the appropriate table to input the generator horsepower and the hours of the operation during the calendar year 2005.

FORM 4: **Summary & Certification**

A summarization of all the emissions by each pollutant will be listed within this form. All reports submitted to the Department should be certified true and accurate by the Responsible Official of the facility. This person is the owner or operator of the facility. **If there is a change of the Responsible Official of the facility, please notify the Department with an additional letter stating the change.**

The completed questionnaire should be submitted to the following address:

Arizona Department of Environmental Quality
Attention: Darlene Celaya, Emission Inventory Team
Air Quality Division, Compliance Section 3415A-3
1110 West Washington Street
Phoenix, AZ 85007

If you have any question or have difficulty completing this form, please contact Darlene Celaya at (602) 771-7662.

FORM 1: FACILITY GENERAL INFORMATION **YEAR 2005**

SECTION I: ***Plant Identification & Mailing Information***

Customer Name: _____

Place Name: _____ Place ID: _____

Mailing Address: _____ City: _____ State: _____ Zip: _____

County: _____

Phone: _____ Fax: _____

Permit #/LTF # _____ General Permit: Yes □ No □

SECTION II: ***EI Contact***

EI Contact Name: _____ Title: _____

Telephone: _____ Fax: _____

SECTION III: ***Confidential Request***

Pursuant to Arizona Revised Statues §49-432 and §49-201, do you claim the Emissions Inventory data submittal confidential. If yes include which portions of the inventory are confidential along with a brief explanation:

Yes □
No □

FORM 2: EQUIPMENT, STACK & LOCATION DATA **YEAR 2005**

Table 1: Equipment List

Equipment Type	Equipment ID	ATO #	Max. Rated Capacity	Amount Processed	Hours Operated

Table 2: Stack Information

	Stack #1	Stack #2	Stack #3
Process Type/Description			
Height (feet)			
Diameter (feet)			
Velocity (feet/second)			
Exhaust Gas Temperature (F)			
Flow Rate (actual cubic feet per minute)			

Table 3: Operation Location

Date		County of Operation	Latitude	Longitude	Address or Driving Directions
From	To				

FORM 3A: EMISSIONS DATA - POINT **YEAR 2005**

Transfer Point Emissions *Conversion Factors - 1 cubic yard = 4000 pounds. 2000 pounds = 1 ton.*

Source	Pollutant	(1) Throughput Rate tons/hour	(2) Hours Operated hours/year	(3) Emission Factor pounds/ton	Emissions = (1)x(2)x(3)/2000 tons/year
Continuous & batch drop operations onto aggregate storage piles	PM10			0.00016	
	PM			0.00032	
Continuous & batch drop operations onto sand storage piles	PM10			0.00004	
	PM			0.00008	
Aggregate transfer to feed hopper	PM10			0.00016	
	PM			0.00032	
Sand transfer to feed hopper	PM10			0.00004	
	PM			0.00008	
Aggregate transfer to elevated bins	PM10			0.00016	
	PM			0.00032	
Sand transfer to elevated bins	PM10			0.00004	
	PM			0.00008	
Aggregate transfer to weigh hoppers	PM10			0.00016	
	PM			0.00032	
Sand transfer to weigh hoppers	PM10			0.00004	
	PM			0.00008	
Cement transfer to silo	PM10			0.00005	
	PM			0.0001	
Cement transfer to weigh hopper	PM10			0.001	
	PM			0.0021	
Mixer loading (truck mix)	PM10			0.0073	
	PM			0.0282	
Mixer loading (central mix)	PM10			0.00061	
	PM			0.0018	
Conveyor transfer points (aggregate)	PM10			0.000022	
	PM			0.000065	
Conveyor transfer points (sand)	PM10			0.000017	
	PM			0.00005	
Screening	PM10			0.00035	
	PM			0.00103	
Fine screening	PM10			0.001	
	PM			0.0017	

FORM 3A: EMISSIONS DATA - FUGITIVES	YEAR 2005

Storage Piles

Source	Pollutants	(1) No. of Piles	(2) Hours Stored hours/year	(3) Emission Factor pounds/hour/pile	Emissions = (1)x(2)x(3)/2000 tons/year
Wind erosion - active aggregate pile	PM10			0.00005	
	PM			0.0001	
Wind erosion - active sand pile	PM10			0.0006	
	PM			0.0012	
Wind erosion - inactive aggregate pile	PM10			0.00054	
	PM			0.00027	
Wind erosion - inactive sand pile	PM10			0.0011	
	PM			0.00055	

Haul Roads - Vehicle Traffic Conversion Factor - 1 foot = 0.0001894 mile

Source	Pollutants	(1) Vehicle Miles Traveled in 2004 miles	(2) Emission Factor pounds/VMT	Emissions = (1)x(2)/2000 tons/year
Front End Loaders	PM10		0.19	
	PM		0.73	
Ready Mix Trucks	PM10		0.17	
	PM		0.66	

FORM 3B: EMISSIONS CALCULATIONS - GENERATORS **YEAR 2005**

	FUEL - GASOLINE				*FUEL - NATURAL GAS OR LIQUIFIED PETROLEUM GAS*			
	Generator #1		**Generator #2**		**Generator #1**		**Generator #2**	
	Max. Capacity (HP-hr) (1)	Operational Hours (hours/year) (2)	Max. Capacity (HP-hr) (4)	Operational Hours (hours/year) (5)	Max. Capacity (HP-hr) (1)	Operational Hours (hours/year) (2)	Max. Capacity (HP-hr) (4)	Operational Hours (hours/year) (5)
Pollutants	Emission Factor (3) pounds/hp-hour	Emissions = (1)x(2)x(3)/2000 tons/year	Emission Factor (6) pounds/hp-hour	Emissions = (4)x(5)x(6)/2000 tons/year	Emission Factor (3) pounds/hp-hour	Emissions = (1)x(2)x(3)/2000 tons/year	Emission Factor (6) pounds/hp-hour	Emissions = (4)x(5)x(6)/2000 tons/year
PM10	0.0007		0.0007		0.0001		0.0001	
PM	0.0007		0.0007		0.0001		0.0001	
CO	0.4390		0.4390		0.0029		0.0029	
VOC	0.0220		0.0220		0.0008		0.0008	
SOx	0.0006		0.0006		4.35E-06		4.35E-06	
NOx	0.0110		0.0110		0.0206		0.0206	
1,3-Butadiene	2.74E-07		2.74E-07		1.69E-06		1.69E-06	
Acenaphthene	9.94E-09		9.94E-09		-		-	
Acenaphthylene	3.54E-08		3.54E-08		-		-	
Acetaldehyde	5.37E-06		5.37E-06		7.10E-06		7.10E-06	
Acrolein	6.48E-07		6.48E-07		6.70E-06		6.70E-06	
Anthracene	1.31E-08		1.31E-08		-		-	
Benzene	6.53E-06		6.53E-06		4.02E-06		4.02E-06	
Benzo(a)anthracene	1.18E-08		1.18E-08		-		-	
Benzo(a)pyrene	1.32E-09		1.32E-09		-		-	
Benzo(b)fluoranthene	6.94E-10		6.94E-10		-		-	
Benzo(g,h,l)perylene	3.42E-09		3.42E-09		-		-	
Benzo(k)fluoranthene	1.09E-09		1.09E-09		-		-	
Butyr/isobutyraldehyde	-		-		1.24E-07		1.24E-07	
Carbon Tetrachloride	-		-		4.51E-08		4.51E-08	
Chlorobenzene	-		-		3.28E-08		3.28E-08	
Chloroform	-		-		3.49E-08		3.49E-08	
Chrysene	2.47E-09		2.47E-09		-		-	
1,1-Dichloroethane	-		-		2.88E-08		2.88E-08	
1,2-Dichloroethane	-		-		2.88E-08		2.88E-08	
1,2-Dichloropropane	-		-		3.31E-09		3.31E-09	
1,3-Dichloropropene	-		-		3.23E-08		3.23E-08	
Dibenz(a,h)anthracene	4.08E-09		4.08E-09		-		-	
Ethane	-		-		1.79E-04		1.79E-04	
Ethylbenzene	-		-		6.31E-08		6.31E-08	
Ethylene Dibromide	-		-		5.42E-08		5.42E-08	
Fluoranthene	5.33E-08		5.33E-08		-		-	
Fluorene	2.04E-07		2.04E-07		-		-	
Formaldehyde	8.26E-06		8.26E-06		5.22E-05		5.22E-05	
Indeno(1,2,3-cd)pyrene	2.63E-09		2.63E-09		-		-	
Methane	-		-		5.86E-04		5.86E-04	
Methanol	-		-		7.79E-06		7.79E-06	
Methylene Chloride	-		-		1.05E-07		1.05E-07	
Naphthalene	5.94E-07		5.94E-07		2.47E-07		2.47E-07	
Phenanthrene	2.06E-07		2.06E-07		-		-	
Propylene	1.81E-05		1.81E-05		-		-	
Pyrene	3.35E-08		3.35E-08		-		-	
Styrene	-		-		3.03E-08		3.03E-08	
Tetrachloroethane	-		-		6.44E-08		6.44E-08	
1,1,2-Trichloroethane	-		-		3.90E-08		3.90E-08	
Toluene	2.86E-06		2.86E-06		1.42E-06		1.42E-06	
Vinyl Chloride	-		-		1.83E-08		1.83E-08	
Xylene	2.00E-06		2.00E-06		4.96E-07		4.96E-07	

FORM 3B: EMISSIONS CALCULATIONS - GENERATORS YEAR 2005

	FUEL - DIESEL - LESS THAN OR EQUAL TO 600 HP				***FUEL - DIESEL - GREATER THAN 600 HP***			
	Generator #1		**Generator #2**		**Generator #1**		**Generator #2**	
	Max. Capacity (HP-hr) (1)	Operational Hours (hours/year) (2)	Max. Capacity (HP-hr) (4)	Operational Hours (hours/year) (5)	Max. Capacity (HP-hr) (1)	Operational Hours (hours/year) (2)	Max. Capacity (HP-hr) (4)	Operational Hours (hours/year) (5)
Pollutants	Emission Factor (3) pounds/hp-hour	Emissions = (1)x(2)x(3)/2000 tons/year	Emission Factor (6) pounds/hp-hour	Emissions = (4)x(5)x(6)/2000 tons/year	Emission Factor (3) pounds/hp-hour	Emissions = (1)x(2)x(3)/2000 tons/year	Emission Factor (6) pounds/hp-hour	Emissions = (4)x(5)x(6)/2000 tons/year
PM10	0.0022		0.0022		0.0006		0.0006	
PM	0.0022		0.0022		0.0007		0.0007	
CO	0.0067		0.0067		0.0055		0.0055	
VOC	0.0025		0.0025		0.0007		0.0007	
SOx	0.0021		0.0021		0.0073		0.0073	
Nox	0.0310		0.0310		0.0240		0.0240	
Acenaphthene	9.94E-09		9.94E-09		5.43E-06		5.43E-06	
Acenaphthylene	3.54E-08		3.54E-08		1.97E-06		1.97E-06	
Acetaldehyde	5.37E-06		5.37E-06		1.76E-07		1.76E-07	
Acrolein	6.48E-07		6.48E-07		5.52E-08		5.52E-08	
Anthracene	1.31E-08		1.31E-08		5.52E-07		5.52E-07	
Benzene	6.53E-06		6.53E-06		5.43E-06		5.43E-06	
Benzo(a)anthracene	1.18E-08		1.18E-08		1.76E-07		1.76E-07	
Benzo(a)pyrene	1.32E-09		1.32E-09		9.10E-07		9.10E-07	
Benzo(b)fluoranthene	6.94E-10		6.94E-10		6.46E-08		6.46E-08	
Benzo(g,h,I)perylene	3.42E-09		3.42E-09		3.28E-08		3.28E-08	
Benzo(k)fluoranthene	1.09E-09		1.09E-09		8.96E-08		8.96E-08	
1,3-Butadiene	2.74E-07		2.74E-07		-		-	
Chrysene	2.47E-09		2.47E-09		2.86E-07		2.86E-07	
Dibenz(a,h)anthracene	4.08E-09		4.08E-09		8.61E-09		8.61E-09	
Fluoranthene	5.33E-08		5.33E-08		2.82E-08		2.82E-08	
Fluorene	2.04E-07		2.04E-07		2.60E-08		2.60E-08	
Formaldehyde	8.26E-06		8.26E-06		4.35E-09		4.35E-09	
Indeno(1,2,3-cd)pyrene	2.63E-09		2.63E-09		1.07E-08		1.07E-08	
Naphthalene	5.94E-07		5.94E-07		7.77E-09		7.77E-09	
Phenanthrene	2.06E-07		2.06E-07		1.53E-09		1.53E-09	
Propylene	1.81E-05		1.81E-05		1.80E-09		1.80E-09	
Pyrene	3.35E-08		3.35E-08		2.90E-09		2.90E-09	
Toluene	2.86E-06		2.86E-06		2.42E-09		2.42E-09	
Xylene	2.00E-06		2.00E-06		3.89E-09		3.89E-09	

FORM 4: SUMMARY & CERTIFICATION	YEAR 2005

Total all the emissions for each pollutant and enter in the table below.

Pollutant	Tonnage (tons per year)
Particulate Matter (PM)	
Particulate Matter Less Than 10 Microns (PM10)	
Nitrogen Oxides (NOx)	
Sulfur Oxides (SOx)	
Volate Organic Compounds (VOC)	
Carbon Monoxide (CO)	
Hazard Air Pollutants (HAPs)	

Certification of Truth & Accuracy
I certify that I have knowledge of the facts set forth in this questionnaire, and that the same are true, accurate and complete to the best of my knowledge and belief, and that all information not identified by me as confidential in nature shall be treated by the Arizona Department of Environmental Quality as public record.

Signature of Responsible Official: _____ Date: _____

Print Name: _____

Title: _____